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1600

#### RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/742,684A

DATE: 05/07/2003 TIME: 11:00:44

Input Set : A:\Slk17206.app

Output Set: N:\CRF4\05072003\1742684A.raw

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3 <110> APPLICANT: MATHEWS, LAWRENCE S.
         VALE JR., WYLIE W.
         TSUCHIDA, KUNIHIRO
 5
 7 <120> TITLE OF INVENTION: CLONING AND RECOMBINANT PRODUCTION OF RECEPTOR(S) OF
 8
         THE ACTIVIN/TGF-BETA SUPERFAMILY
10 <130> FILE REFERENCE: SALK1720-6
12 <140> CURRENT APPLICATION NUMBER: 09/742,684A
13 <141> CURRENT FILING DATE: 2000-12-19
15 <150> PRIOR APPLICATION NUMBER: 08/476,123
16 <151> PRIOR FILING DATE: 1995-06-07
18 <150> PRIOR APPLICATION NUMBER: 08/300.584
19 <151> PRIOR FILING DATE: 1994-09-02
21 <150> PRIOR APPLICATION NUMBER: 07/880,220
22 <151> PRIOR FILING DATE: 1992-05-08
24 <150> PRIOR APPLICATION NUMBER: 07/773,229
25 <151> PRIOR FILING DATE: 1991-10-09
27 <150> PRIOR APPLICATION NUMBER: 07/698,709
28 <151> PRIOR FILING DATE: 1991-05-10
30 <160> NUMBER OF SEQ ID NOS: 16
32 <170> SOFTWARE: PatentIn Ver. 2.1
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35 <211> LENGTH: 2563
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37 <213> ORGANISM: Mus sp.
39 <220> FEATURE:
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48
50 atc tct tgc tct tca ggt gct ata ctt ggc aga tca gaa act cag gag
51 Ile Ser Cys Ser Ser Gly Ala Ile Leu Gly Arg Ser Glu Thr Gln Glu
52
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                            20
54 tgt ctt ttc ttt aat gct aat tgg gaa aga gac aga acc aac cag act
55 Cys Leu Phe Phe Asn Ala Asn Trp Glu Arg Asp Arg Thr Asn Gln Thr
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                                            40
58 ggt gtt gaa cct tgc tat ggt gat aaa gat aaa cgg cga cat tgt ttt
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59 Gly Val Glu Pro Cys Tyr Gly Asp Lys Asp Lys Arg Arg His Cys Phe
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62 gct acc tgg aag aat att tct ggt tcc att gaa ata gtg aag caa ggt
63 Ala Thr Trp Lys Asn Ile Ser Gly Ser Ile Glu Ile Val Lys Gln Gly
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# RAW SEQUENCE LISTING DATE: 05/07/2003 PATENT APPLICATION: US/09/742,684A TIME: 11:00:44

Input Set : A:\Slk17206.app

Output Set: N:\CRF4\05072003\I742684A.raw

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67 Cys Trp Leu Asp Asp Ile Asn Cys Tyr Asp Arg Thr Asp Cys Ile Glu 68		+ ~+	taa	cta		ast	at c	220	tac		a a c	add	act	cat	_	ata	gaa	349
68       80       85       90         70       aaa aaa gac agc cct gaa gtg tac ttt tgt tgc tgt gag ggc aat atg       397         71       Lys Lys Lys Asp Ser Pro Glu Val Tyr Phe Cys Cys Cys Glu Gly Asn Met       105         74       tgt aat gaa aag ttc tct tat ttt ccg gag atg gaa gtc aca cag ccc       445         75       Cys Asn Glu Lys Phe Ser Tyr Phe Pro Glu Met Glu Val Thr Gln Pro       125         78       act tca aat cct gtt aca ccg aag cca cct tat tac aca att ctg ctg       493         79       Thr Ser Asn Pro Val Thr Pro Lys Pro Pro Tyr Tyr Asn Ile Leu Leu       100         82       tat tcc ttg gta cca cta atg tta att gca gga att gtc att tgt gca       130       135         82       tat tcc ttg gta cca cta atg tta att gca gga gga att gtc att tgt gca       145       150       155         83       Tyr Ser Leu Val Pro Leu Met Leu Ile Ala Gly Ile Val Ile Cys Ala       145       150       155         84       145       150       155       155       155         86       ttt tgg gtg tac aga cat cac aga ccc acc ccc cct cct cct gta ctt gt       160       166       170         91       Pro Thr Gln Asp Pro Gly Pro Pro Pro Pro Pro Ser Pro Leu Leu Gly Leu       120       20       637         91       Pro Thr Gln Asp Pro Gly Ero Pro Pro Pro Pro Pro Pro Pro Pro Pro P				_	_	_			-		-			_	_			242
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71 Lys Lys Asp Ser Pro Glu Val Tyr Phe Cys Cys Glu Gly Asn Met 72 95 100 105 74 tgt aat gaa aag ttc tct tat ttt ccg gag atg gaa gtc aca cag ccc 75 Cys Asn Glu Lys Phe Ser Tyr Phe Pro Glu Met Glu Val Thr Gln Pro 76 110 115 120 125 78 act tca aat cct gtt aca ccg aag cca ccc tat tac aac att ctg ctg 79 Thr Ser Asn Pro Val Thr Pro Lys Pro Pro Tyr Tyr Asn Ile Leu Leu 80 130 135 140 82 tat tcc ttg gta cca cta atg tta att gca gga att gtc att tgt gca 83 Tyr Ser Leu Val Pro Leu Met Leu Ile Ala Gly Ile Val Ile Cys Ala 84 145 150 155 86 ttt tgg gtg tac aga cat cac aag atg gcc tac cct cct gta ctt gt 87 Phe Trp Val Tyr Arg His His Lys Met Ala Tyr Pro Pro Val Leu Val 88 160 165 170 90 cct act caa gac cca gga cca ccc cca cct tcc cca tta cta ggg ttg 91 Pro Thr Gln Asp Pro Gly Pro Pro Pro Pro Pro Pro Pro Val Leu Ual 92 175 180 185 94 aag cca ttg cag ctg tta gaa gtg aaa gag aga ga ga ga ga ttt gtt 95 Lys Pro Leu Gln Leu Leu Glu Val Lys Ala Arg Gly Arg Phe Gly Cys 96 190 205 96 gtc tgg aaa gcc cag ttg ctc aat gaa tat gtg gct gc aaa ata ttt 733 99 Val Trp Lys Ala Gln Leu Leu Asn Glu Tyr Val Ala Val Lys Ile Phe 100 210 205 80 gtc tgg aag acg aga aca cat ctg cag att gag aca gc gag aga ttt gt gt 107 Leu Pro Gly Met Lys His Glu Asn Ile Leu Gln Phe Ile Gly Ala Glu 108 240 225 230 285 118 tgg aat gag cac agt gtg gat gtg gac ctg taat att gg gca gag 107 Leu Pro Gly Met Lys His Glu Asn Ile Leu Gln Phe Ile Gly Ala Glu 108 240 245 250 110 aaa aga ggc acc agt gtg gat gtg gac ctg tgg cta aat aca gca ttt 111 Lys Arg Gly Thr Ser Val Asp Val Asp Leu Trp Leu Ile Gly Ala Glu 125 260 265 114 cat gaa aad gac ctt at ct ga gaa ct tct aag gct aat gt gtc 126 127 275 280 285 118 tgg aat gaa ctt gt cat att gca gaa acc atg gct aat gt gca ga 107 Leu Pro Gly Met Lys His Glu Asn Ile Leu Gln Phe Ile Gly Ala Glu 126 127 128 116 Ala Arg Gly Leu Ala 127 128 129 129 130 1315 128 129 129 130 130 1315 129 120 120 120 130 130 130 130 130 130 130 130 130 13		aaa	aaa		age	cct	даа	ata		+++	tat	tac	tat		aac	aat	atα	397
105																		
74         tgt aat gaa aag ttc tct tat ttt ccg gag atg gaa gtc aca cag ccc         445           75         Cys Asn Glu Lys Phe Ser Tyr Phe Pro Glu Met Glu Val Thr Gln Pro 1ch 110         115         120         125           78         act tca aat cct gtt aca ccg aag cca ccc tat tac aac att ctg ctg 79         Thr Ser Asn Pro Val Thr Pro Lys Pro Pro Tyr Tyr Asn Ile Leu Leu 130         135         140         493           82         tat tcc ttg gta cca cta atg tta att gca gga att gtc att tgt gca 71         135         140         541		270	_	ПОР	001		0.2.0		- 1 -	1110	010	010			<i>1</i>			
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76 110																		
78		_			1													
79 Thr Ser Asn Pro Val Thr Pro Lys Pro Pro Tyr Tyr Asn Ile Leu Leu 80 130 135 140 135			tca	aat	cct	gtt	aca	ccq	aaq	сса	ccc	tat	tac	aac	att	ctg	ctg	493
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84	82	tat	tcc	ttg	gta	cca	cta	atg	tta	att	gca	gga	att	gtc	att	tgt	gca	541
86 ttt tgg gtg tac aga cat cac aag atg gcc tac cct cct gta ctt gtt 87 Phe Trp Val Tyr Arg His His Lys Met Ala Tyr Pro Pro Val Leu Val 88 160 165 170 90 cct act caa gac cca gga cca ccc cca cct tcc cca tta cta ggg ttg 91 Pro Thr Gln Asp Pro Gly Pro Pro Pro Pro Ser Pro Leu Leu Gly Leu 92 175 180 185 94 aag cca ttg cag ctg tta gaa gtg aaa gca agg gga aga ttt ggt tgt 95 Lys Pro Leu Gln Leu Leu Glu Val Lys Ala Arg Gly Arg Phe Gly Cys 96 190 195 200 205 98 gtc tgg aaa gcc cag ttg ctc aat gaa tat gtg gct gtc aaa ata ttt 99 Val Trp Lys Ala Gln Leu Leu Asn Glu Tyr Val Ala Val Lys Ile Phe 100 210 215 220 102 cca ata cag gac aaa cag tcc tgg cag aat gaa tat gaa gtc tat agt 103 Pro Ile Gln Asp Lys Gln Ser Trp Gln Asn Glu Tyr Glu Val Tyr Ser 104 225 230 235 106 cta cct gga atg aag cat gag aac ata cta cag ttc att ggt gca gag 107 Leu Pro Gly Met Lys His Glu Asn Ile Leu Gln Phe Ile Gly Ala Glu 108 240 245 250 110 aaa aga ggc acc agt gtg ggt ggc ctg tgg cta atc aca gca ttt 111 Lys Arg Gly Thr Ser Val Asp Val Asp Leu Trp Leu Ile Thr Ala Phe 112 255 260 265 114 cat gaa aag gct cac ttg tca gac ttt ctt aag gct aat gtg gtc tct 115 His Glu Lys Gly Ser Leu Ser Asp Phe Leu Lys Ala Asn Val Val Ser 116 270 275 280 285 118 tgg aat gaa ctt tgt cat att gca gaa cca tg gcd aac att cta cag ttc att ggt gca 119 Trp Asn Glu Leu Cys His Ile Ala Glu Thr Met Ala Arg Gly Leu Ala 120 290 295 300 122 tat tta cat gag gat ata cct ggc tta aaa gat ggc cac aag cct gca 123 Tyr Leu His Glu Asp Ile Pro Gly Leu Lys Asp Gly His Lys Pro Ala 124 305 310 125 106	83	Tyr	Ser	Leu	Val	Pro	Leu	Met	Leu	Ile	Ala	Gly	Ile	Val	Ile	Cys	Ala	
87 Phe Trp Val Tyr Arg His His Lys Met Ala Tyr Pro Pro Val Leu Val 88	84				145					150					155			
88																		589
90 cct act caa gac cca gga cca ccc cca cct tcc cca tta cta ggg ttg 91 Pro Thr Gln Asp Pro Gly Pro Pro Pro Pro Ser Pro Leu Leu Gly Leu 92 175 180 185  94 aag cca ttg cag ctg tta gaa gtg aaa gca agg gga aga ttt ggt tgt 95 Lys Pro Leu Gln Leu Leu Glu Val Lys Ala Arg Gly Arg Phe Gly Cys 96 190 195 200 205  98 gtc tgg aaa gcc cag ttg ctc aat gaa tat gtg gct gtc aaa ata ttt 99 Val Trp Lys Ala Gln Leu Leu Asn Glu Tyr Val Ala Val Lys Ile Phe 100 215 220  102 cca ata cag gac aaa cag tcc tgg cag aat gaa tat gaa gtc tat agt 103 Pro Ile Gln Asp Lys Gln Ser Trp Gln Asn Glu Tyr Glu Val Tyr Ser 104 225 230 235  106 cta cct gga atg aag cat gag aca at acta cag ttc att ggt gca gag 107 Leu Pro Gly Met Lys His Glu Asn Ile Leu Gln Phe Ile Gly Ala Glu 108 240 245  110 aaa aga ggc acc agt gtg gat gtg gac ctg tgg cta atc aca gca tt 111 Lys Arg Gly Thr Ser Val Asp Val Asp Leu Trp Leu Ile Thr Ala Phe 112 255 260  114 cat gaa aag ggc tca ctg tca gac ttt ctt aag gct aat gtg gcc gaa 119 Trp Asn Glu Leu Cys His Ile Ala Glu Thr Met Ala Asn Val Val Ser 116 270 275 280  127 Leu His Glu Leu Cys His Ile Ala Glu Thr Met Ala Asn Val Val Ser 117 Trp Asn Glu Leu Cys His Ile Ala Glu Thr Met Ala Asn Val Val Ser 118 tgg aat gaa ctt tgt cat att gca gaa acc att gcc aag gcd acc aag cct gca 123 Tyr Leu His Glu Asp Ile Pro Gly Leu Lys Asp Gly His Lys Pro Ala 124 305  126 atc tct cac agg gac atc aaa agt aaa aat gtg ctg ttg aaa aac aat 1069  127 Ile Ser His Arg Asp Ile Lys Ser Lys Asn Val Leu Leu Lys Asn Asn	87	Phe	Trp	Val	Tyr	Arg	His	His	Lys	Met	Ala	Tyr	Pro	Pro	Val	Leu	Val	
91 Pro Thr Gln Asp Pro Gly Pro Pro Pro Pro Ser Pro Leu Leu Gly Leu 92																		
92																		637
94 aag cca ttg cag ctg tta gaa gtg aaa gca agg gga aga ttt ggt tgt 95 Lys Pro Leu Gln Leu Leu Glu Val Lys Ala Arg Gly Arg Phe Gly Cys 96 190 195 200 205 98 gtc tgg aaa gcc cag ttg ctc aat gaa tat gtg gct gtc aaa ata ttt 99 Val Trp Lys Ala Gln Leu Leu Asn Glu Tyr Val Ala Val Lys Ile Phe 100 210 215 220 102 cca ata cag gac aaa cag tcc tgg cag aat gaa tat gaa gtc tat agt 103 Pro Ile Gln Asp Lys Gln Ser Trp Gln Asn Glu Tyr Glu Val Tyr Ser 104 225 230 235 106 cta cct gga atg aag cat gag ac ata cta cag ttc att ggt gca gag 107 Leu Pro Gly Met Lys His Glu Asn Ile Leu Gln Phe Ile Gly Ala Glu 108 240 245 250 110 aaa aga ggc acc agt gtg gat gtg gac ctg tgg cta atc aca gca ttt 111 Lys Arg Gly Thr Ser Val Asp Val Asp Leu Trp Leu Ile Thr Ala Phe 112 255 260 265 114 cat gaa aag ggc tca ctg tca gac ttt ctt aag gct aat gtg gtc tct 115 His Glu Lys Gly Ser Leu Ser Asp Phe Leu Lys Ala Asn Val Val Ser 116 270 275 280 285 118 tgg aat gaa ctt tgt cat att gca gaa acc at ggc agg gga ttg gca ggg attg gca gag gga ttg gca gag gga ttg gca gag gga ttg tgc acc atg gca gag gga ttg tgc acc atg gca gag gad ttg gca 197 Trp Asn Glu Leu Cys His Ile Ala Glu Thr Met Ala Arg Gly Leu Ala 120 290 295 300 122 tat tta cat gag gat ata cct ggc tta aaa gat ggc cac aag cct gca 123 Tyr Leu His Glu Asp Ile Pro Gly Leu Lys Asp Gly His Lys Pro Ala 124 305 310 315 126 atc tct cac agg gac atc aaa agt aaa aat gtg ctg ttg aaa aac aat 1069		Pro		Gln	Asp	Pro	Gly		Pro	Pro	Pro	Ser		Leu	Leu	Gly	Leu	
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99 Val Trp Lys Ala Gln Leu Leu Asn Glu Tyr Val Ala Val Lys Ile Phe 100											1			4				722
100		_			_	_	_			_			_	-				133
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103 Pro Ile Gln Asp Lys Gln Ser Trp Gln Asn Glu Tyr Glu Val Tyr Ser 104			+.					· + ac	. + ~ .	* 000			. + - +	- ~	a+			791
104																		701
106 cta cct gga atg aag cat gag aac ata cta cag ttc att ggt gca gag   829			, ,,	5 GII	_	_	011	ı beı				1 010	, 1 y 1	. 010		_	L DCI	
107 Leu Pro Gly Met Lys His Glu Asn Ile Leu Gln Phe Ile Gly Ala Glu 108			cct	- aa:			r cat	- dad	1 220			cac	1 ++0	att			nan e	829
108																		0.25
110 aaa aga ggc acc agt gtg gat gtg gac ctg tgg cta atc aca gca ttt 111 Lys Arg Gly Thr Ser Val Asp Val Asp Leu Trp Leu Ile Thr Ala Phe 112				_			,	. 010				. 011				,	. 014	
111       Lys       Arg Gly       Thr       Ser       Val       Asp       Val       Asp       Leu       Trp       Leu       Thr       Ala       Phe         112       255       255       260       260       265       265       265       265         114       cat       gaa       aag       ggc       tca       ctg       tca       gac       ttt       ctt       cat       ggc       tat       ctt       ggc       tct       925         115       His       Glu       Lys       Gly       Ser       Leu       Ser       Asp       Phe       Leu       Lys       Ala       Asn       Val       Val       Ser         116       270       275       275       280       280       285       285         118       tgg       aat       gaa       ctt       tgt       cat       att       gca       gaa       acc       atg       gct       aga       gga       ttg       gca       973         119       Trp       Asn       Glu       Leu       Cys       His       Ilu       Ala       Alu       Alu       Alu       Alu       Alu       Alu       <			aσa			agt	ato	r gat			cto	ı tac	, cta			a qca	a ttt	877
112       255       260       265         114       cat gaa aag ggc tca ctg tca gac ttt ctt aag gct aat gtg gtc tct       925         115       His Glu Lys Gly Ser Leu Ser Asp Phe Leu Lys Ala Asn Val Val Ser       280       285         116       270       275       280       285         118       tgg aat gaa ctt tgt cat att gca gaa acc atg gct aga gga ttg gca       973         119       Trp Asn Glu Leu Cys His Ile Ala Glu Thr Met Ala Arg Gly Leu Ala       290       295         122       tat tta cat gag gat ata cct ggc tta aaa gat ggc cac aag cct gca       1021         123       Tyr Leu His Glu Asp Ile Pro Gly Leu Lys Asp Gly His Lys Pro Ala       315         124       305       310       315         126       atc tct cac agg gac atc aaa agt aaa aat gtg ctg ttg aaa aac aat       1069         127       Ile Ser His Arg Asp Ile Lys Ser Lys Asn Val Leu Leu Lys Asn Asn																		
115 His Glu Lys Gly Ser Leu Ser Asp Phe Leu Lys Ala Asn Val Val Ser 116 270 275 280 285  118 tgg aat gaa ctt tgt cat att gca gaa acc atg gct aga gga ttg gca 973  119 Trp Asn Glu Leu Cys His Ile Ala Glu Thr Met Ala Arg Gly Leu Ala 120 290 295 300  122 tat tta cat gag gat ata cct ggc tta aaa gat ggc cac aag cct gca 1021  123 Tyr Leu His Glu Asp Ile Pro Gly Leu Lys Asp Gly His Lys Pro Ala 124 305 310 315  126 atc tct cac agg gac atc aaa agt aaa aat gtg ctg ttg aaa aac aat 1069  127 Ile Ser His Arg Asp Ile Lys Ser Lys Asn Val Leu Leu Lys Asn Asn		_			•			_		-		_						
115 His Glu Lys Gly Ser Leu Ser Asp Phe Leu Lys Ala Asn Val Val Ser 116 270	114	cat	gaa	a aad	g ggc	tca	cto	, tca	gad	ttt	ctt:	aac	g gct	aat	gto	ggto	c tct	925
118 tgg aat gaa ctt tgt cat att gca gaa acc atg gct aga gga ttg gca 973 119 Trp Asn Glu Leu Cys His Ile Ala Glu Thr Met Ala Arg Gly Leu Ala 120 290 295 300 122 tat tta cat gag gat ata cct ggc tta aaa gat ggc cac aag cct gca 1021 123 Tyr Leu His Glu Asp Ile Pro Gly Leu Lys Asp Gly His Lys Pro Ala 124 305 310 315 126 atc tct cac agg gac atc aaa agt aaa aat gtg ctg ttg aaa aac aat 1069 127 Ile Ser His Arg Asp Ile Lys Ser Lys Asn Val Leu Leu Lys Asn Asn																		
119 Trp Asn Glu Leu Cys His Ile Ala Glu Thr Met Ala Arg Gly Leu Ala 120 290 295 300  122 tat tta cat gag gat ata cct ggc tta aaa gat ggc cac aag cct gca 1021 123 Tyr Leu His Glu Asp Ile Pro Gly Leu Lys Asp Gly His Lys Pro Ala 124 305 310 315  126 atc tct cac agg gac atc aaa agt aaa aat gtg ctg ttg aaa aac aat 1069 127 Ile Ser His Arg Asp Ile Lys Ser Lys Asn Val Leu Leu Lys Asn Asn	116	270	)	_	_		275	5	_			280	)				285	
120 290 295 300  122 tat tta cat gag gat ata cct ggc tta aaa gat ggc cac aag cct gca 1021  123 Tyr Leu His Glu Asp Ile Pro Gly Leu Lys Asp Gly His Lys Pro Ala  124 305 310 315  126 atc tct cac agg gac atc aaa agt aaa aat gtg ctg ttg aaa aac aat 1069  127 Ile Ser His Arg Asp Ile Lys Ser Lys Asn Val Leu Leu Lys Asn Asn	118	tgg	, aat	gaa	a ctt	: tgt	cat	att	gca	a gaa	acc	ato	g gct	aga	a gga	a tto	g gca	973
122 tat tta cat gag gat ata cct ggc tta aaa gat ggc cac aag cct gca 1021 123 Tyr Leu His Glu Asp Ile Pro Gly Leu Lys Asp Gly His Lys Pro Ala 124 305 310 315 126 atc tct cac agg gac atc aaa agt aaa aat gtg ctg ttg aaa aac aat 1069 127 Ile Ser His Arg Asp Ile Lys Ser Lys Asn Val Leu Leu Lys Asn Asn	119	Trp	Asr	ı Glı	ı Lev	Cys	His	: Ile	e Ala	a Glu	ı Thr	: Met	: Ala	a Arg	g Gly	y Lei	ı Ala	
123 Tyr Leu His Glu Asp Ile Pro Gly Leu Lys Asp Gly His Lys Pro Ala 124 305 310 315  126 atc tct cac agg gac atc aaa agt aaa aat gtg ctg ttg aaa aac aat 1069 127 Ile Ser His Arg Asp Ile Lys Ser Lys Asn Val Leu Leu Lys Asn Asn	120					290					295	5				300	0 .	
124 305 310 315 126 atc tct cac agg gac atc aaa agt aaa aat gtg ctg ttg aaa aac aat 1069 127 Ile Ser His Arg Asp Ile Lys Ser Lys Asn Val Leu Leu Lys Asn Asn																		1021
126 atc tct cac agg gac atc aaa agt aaa aat gtg ctg ttg aaa aac aat 1069 127 Ile Ser His Arg Asp Ile Lys Ser Lys Asn Val Leu Lys Asn Asn	123	Tyr	Leu	ı His	s Glu	Asp	) Ile	e Pro	Gly	/ Let	ı Lys	s Asp	Gl	/ His	s Lys	s Pro	o Ala	
127 Ile Ser His Arg Asp Ile Lys Ser Lys Asn Val Leu Leu Lys Asn Asn																		
																		1069
128 320 325 330			Ser		_	, Asp	Ile	e Lys		_	Asr.	ı Val	. Lei		_	s Ası	n Asn	
	128			320	)				325	5				330	)			

## RAW SEQUENCE LISTING

DATE: 05/07/2003 PATENT APPLICATION: US/09/742,684A TIME: 11:00:44

Input Set : A:\Slk17206.app

Output Set: N:\CRF4\05072003\I742684A.raw

120	ata	202	act	tac	2++	aat	~~~	+++	~~~	++~	~~~	++-	224	++-	~~~	aat	1117
															gag Glu		111/
132		335	1110	O J O		1114	340		O± y	шса	2110	345	ى بر ت	1110	Oru	7114	
	ggc		tct	gca	ggt	gac		cat	aga	caq	gtt		acc	cgg	agg	tat	1165
															Arg		
	350	-			_	355			_		360	-		_	, -	365	
138	atg	gct	cca	gag	gtg	ttg	gag	ggt	gct	ata	aac	ttc	caa	agg	gac	gca	1213
139	Met	Ala	Pro	Glu	Val	Leu	Glu	Gly	Āla	Ile	Asn	Phe	Gln	Arg	Asp	Āla	
140					370					375					380		
		_			-	-		_	-						gaa	_	1261
	Phe	Leu	Arg	Ile	Asp	Met	Tyr	Ala	Met	Gly	Leu	Val	Leu	Trp	Glu	Leu	
144				385					390					395			
															atg		1309
	Ala	Ser	_	Cys	Thr	Ala	Ala	-	Gly	Pro	Val	Asp		Tyr	Met	Leu	
148			400					405					410				
				_	-			_					_	-	atg	-	1357
	Pro		GIU	GIU	GIU	TTE	420	GIn	Hls	Pro	Ser		Glu	Asp	Met	GIn	
152	~~~	415	~++	~± ~	aa+	222		224	200	aat	~++	425	200	~~+	+ - +	+~~	1405
															tat Tyr		1405
	430	vaı	vaı	vaı	птэ	435	гуз	пуз	Arg	FIO	440	пеп	Arg	ASP	ıyı	445	
		aaa	cat	gca	gga		aca	atα	ctc	tat		aca	ata	gaa	gaa		1453
															Glu		1100
160					450			1100	200	455	014			<u> </u>	460	O J D	
	tgg	gat	cat	gat	qca	qaa	qcc	agg	tta		act	gga	tat	qta	ggt	gaa	1501
															бĺу		
164	-	-		465					470			-	-	475	-		
166	aga	att	act	cag	atg	caa	aga	cta	aca	aat	atc	att	act	aca	gag	gac	1549
167	Arg	Ile	Thr	Gln	Met	Gln	Arg	Leu	Thr	Asn	Ile	Ile	Thr	Thr	Glu	Asp	
168			480					485					490				
															CCC		1597
	Ile		Thr	Val	Val	Thr		Val	Thr	Asn	Val	_	Phe	Pro	Pro	Lys	
172		495					500					505					
	gaa		_		tgat	ggt	ggc a	accgt	ctgt	a ca	acact	gagg	y act	ggga	actc		1649
	Glu	Ser	Ser	Leu													
	510	a+ ~	~~~	-t ~ at	~	.+	. ~ ~ ~ -	~ + .	++	- ~ ~ + +	. ~ ~ +	+++,	.+ ~+ ~		+ .	+	1700
																gagtag agatgg	
																gaaaag	
																atcaa	
																atgtc	
																acttt	
																aatga	
																gtgtac	
																ctcaa	
196	caac	ggtat	ac c	ctcac	gttc	ca co	gtto	ttaa	att	ataa	aat	tgaa	aaca	ict a	acag	gaattt	2249
198	gaat	aaat	ca ç	gtcca	atgtt	t ta	itaac	aagg	, tta	atta	caa	atto	cacto	gtg t	tatt	taaga	2309
																gtttta	
202	gctt	ttct	tc t	acto	gctt	g ta	attt	aggo	aaa	acaa	ıgtg	ctgt	cttt	ga a	atgo	gaaaag	2429

## RAW SEQUENCE LISTING

DATE: 05/07/2003 TIME: 11:00:44 PATENT APPLICATION: US/09/742,684A

Input Set : A:\Slk17206.app

Output Set: N:\CRF4\05072003\1742684A.raw

206 208 211 212	04 aatatggtgt caccctaccc cccatactta tatcaaggtc ccaaaatatt cttttccatt 2489 06 tcaaagacag cactttgaaa accctaaatt acaagccagt agaagaaaag ctaaaacacg 2549 08 ctttacaaat agcc 2563 11 <210> SEQ ID NO: 2 12 <211> LENGTH: 513 13 <212> TYPE: PRT																
214						sp.											
216										_			_			_	
		Gly	Ala	Ala		Lys	Leu	Ala	Phe		Val	Phe	Leu	Ile	Ser	Cys	
218	1	Con	C1	711-	5 Tlo	T 011	C1	7. ~~~	Cor	10	Thr	Cln	Clu	Cvc	15	Pho	
221	ser	ser	Gry	20	TTE	ьеи	сту	Arg	25	GIU	TIIL	GIII	Gru	30	Leu	rne	
	Phe	Asn	Ala		Trp	Glu	Arg	Asp	Arg	Thr	Asn	Gln	Thr	Gly	Val	Glu	
224			35					40					45				
226 227	Pro	Cys 50	Tyr	Gly	Asp	Lys	Asp 55	Lys	Arg	Arg	His	Cys 60	Phe	Ala	Thr	Trp	
	_	Asn	Ile	Ser	Gly		Ile	Glu	Ile	Val		Gln	Gly	Cys	Trp		
	65	_				_70	_	_		_	75		~ 1	_	_	80	
232 . 233	Asp	Asp	IIe	Asn	Cys 85	Tyr	Asp	Arg	Thr	Asp 90	Cys	He	Glu	ьуs	Lys 95	Asp	
	Ser	Pro	Glu	Val	•	Phe	Cvs	Cvs	Cvs		Glv	Asn	Met	Cvs	Asn	Glu	
236				100	- 1 -		-1-	010	105		1			110			
238	Lys	Phe	Ser	Tyr	Phe	Pro	Glu	Met	Glu	Val	Thr	Gln	Pro	Thr	Ser	Asn	
239			115					120					125				
241 242	Pro	Val 130	Thr	Pro	Lys	Pro	Pro 135	Tyr	Tyr	Asn	Ile	Leu 140	Leu	Tyr	Ser	Leu	
244	Val	Pro	Leu	Met	Leu		Ala	Gly	Ile	Val		Cys	Ala	Phe	Trp		
245		_			_	150		_	_	_	155	_		_	<b></b> 1	160	
	Tyr	Arg	His	His	Lys 165	Met	Ala	Tyr	Pro	170	Val	Leu	Val	Pro	Thr 175	GIn	
248 250	Asn'	Pro	Glv	Pro		Pro	Pro	Ser	Pro		T.e.ii	Glv	T.e.ii	Lvs	Pro	Len	
251	тър	110	Cry	180	110	110	110	DCI	185	БСи	Lou	OT 1	Lou	190	110	200	
	Gln	Leu	Leu	Glu	Val	Lys	Ala	Arg	Gly	Arg	Phe	Gly	Cys	Val	Trp	Lys	
254			195					200					205				
	Ala		Leu	Leu	Asn	Glu	_	Val	Ala	Val	Lys		Phe	Pro	Ile	Gln	
257	7\ ~~	210	C1-	C	П	C1-	215	C1	Ф	C1.1	77 o 7	220	Co~	Lon	D∞o	C1	
260		гàг	GIN	ser	Trp	230	Asn	Glu	Tyr	GIU	235	ıyr	ser	ьeu	Pro	240	
		Lvs	His	G111	Asn		Leu	Gln	Phe	Ile		Ala	Glu	Lvs	Arg		
263																-	
265	Thr	Ser	Val	Asp	Val	Asp	Leu	Trp	Leu	Ile	Thr	Ala	Phe	His	Glu	Lys	
266				260					265					270			
	Gly	Ser		Ser	Asp	Phe	Leu		Ala	Asn	Val	Val		Trp	Asn	Glu	
269	T a	C	275	т1 -	- דת	C1	m <b>L</b>	280 Mot	71.7.	7)	C1	T 615	285	П	T 011	uic	
271	ьeu	Cys 290	H1S	тте	ΑΙΑ	GIU	295	мет	АТА	Arg	ату	ьеи 300	ALG	ıyr	Leu	uis	
	Glu		IJe	Pro	G] v	Len		Asp	Glv	His	Lvs		Ala	Ile	Ser	His	
275					1	310	-1-		1		315					320	
		Asp	Ile	Lys	Ser	Lys	Asn	Val	Leu	Leu	Lys	Asn	Asn	Leu	Thr	Ala	

RAW SEQUENCE LISTING DATE: 05/07/2003 PATENT APPLICATION: US/09/742,684A TIME: 11:00:44

Input Set : A:\Slk17206.app

Output Set: N:\CRF4\05072003\I742684A.raw

270					205					220					225		
278	C···a	Tlo	717 ~	7\ ~~	325	C1	T 011	717	Leu	330	Dho	C1	71.	C1	335	Com	
281	Cys	116	нта	340	rne	СТУ	ьеи	на	345	ту	FIIE	GIU	Ата	350	цуб	ser	
	717	Clar	7) am		uic	C1	Cln	Val		Πh ν	71 ~~~	7. ~~	Ф		71.	Dro	
284	Ala	сту	355	TIIT	птъ	СТУ	GIII	360	Gly	1111	Arg	Arg	365	Met	Ата	PIO	
	C1	Wa 1		C1	C1	7.1.	Tla		Dha	C1 n	7. 20.00	7) am		Dha	τ	7) 20 07	
	GIU		ьeu	GIU	GIŅ	Ата	375	ASII	Phe	GTII	Arg	380	Ald	rne	ьец	Arg	
287	Tla	370	Mot	П	71.7	Mot		T 0.11	17 n l	T 0	TI www		T 0.11	70.7	C ~ ~	7. ~~ ~	
		ASP	мес	ıyı	ALA	390	СТУ	ьеи	Val	ьеи	395	GIU	ьeu	Ald	ser	-	
	385	mb ~	717	71.	7. ~~		Dwo	170 1	7.00	C1		Mot	Т о	Dwa	Dha	400	
292	Cys	THI	Ата	Ата	405	σтλ	PLO	vaı	Asp	410	ıyr	мес	ьец	PIO		GIU	
	C1	C1	T1.	C1		111.4	Dage	C	Leu		71	Mak	C1-	C1	415	17-1	
296	GIU	GIU	тте	420	GIII	птѕ	PIO	ser	425	GIU	Asp	Met	GIII	430	Val	Vai	
	17.0.1	114.0	T		T	7	Dece	17.0.3		7)	7	m	TT		T	TI di co	
	vaı	nis	_	гÃ2	гуѕ	Arg	Pro		Leu	Arg	Asp	ıyr	_	GIII	ьуѕ	HIS	
299	7.1	C1	435	70.7 -	M-+	T	C	440	m1	T1.	C1	C1	445	П	7\	11.5 -	
	Ala		мет	Ala	мет	ьeu	_	GIU	Thr	тте	GIU		Cys	Trp	Asp	HIS	
302	7	450	G1	70.7 -	7	т	455	70.7 -	<b>C1</b>	<b>C</b>	**- 1	460	<b>01</b>	70	<b>T</b> 1.	m1	
	_	Ата	GIU	Ата	Arg		Ser	Ата	Gly	Cys		СТА	GIU	Arg	ile		
	465	M-1	C1-	7\	T	470	7	т1 -	T1 -	m1	475	<b>G1</b>	70	<b>T1</b> -	77-7	480	
	GIII	мет	GIN	Arg		Thr	Asn	тте	Ile		Thr	GIU	Asp	тте		Thr	
308	77-3	77-7	m 1	14 - 4-	485	m 1	70	77 - 7	7	490	D	D	T	<b>01</b>	495	0	
	vai	Val	III		Vai	IHL	ASII	vaı	Asp	Pne	Pro	Pro	ьуѕ		ser	Ser	
311																	
	3 Leu																
	5 <210> SEQ ID NO: 3																
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	<220				venc	pus	sp.										
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	<400					,,	(199	′ /									
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																gtctca	
		-	_		_	_			_		-					ctgctg	
		_	_	_	_			-	-	-					-	attaca	
			_													cgcggc	
																gcgaat	
																ctcggc	
																gcg	
341	cyac	rcyg	jai i	Litai	.ccg	y it	.gg.c	jaya	y aac	jegga	1000	cay	Jage		Gly		470
342														Met 1	ату	Ата	
	+ a+	~+ >	~~~	at a	2.at	+++	at a	a++	a++	a++	~~~	a a t	++0	_	~~~	~~~	524
									ctt Leu								524
346	ser	va1 5	нта	ьец	1111	rne	10	ьеи	ьеи	цец	нта	15	riie	ALG	нта	GIY	
	+ < >	_	020	as+	<b>~</b> ~ ~	~+~		202	202	~~~	+~~		+ - +	+	22+	aac	572
									aga Arg								JIZ
350	20	ату	птр	vah	GIU	25	GIU	TIIT	ALY	GIU	30	тте	т Ат.	т Ат	HSII	35	
		+~~	a a a	ct~	a - a		200	220	caa	2 Cr+		at a	ara a	200	+~~		620
552	aac	cgg	yaa	cty	yay	aay	acc	aac	caa	ayı	999	grg	yaa	age	Lyc	yaa	020

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/742,684A
DATE: 05/07/2003
TIME: 11:00:45

Input Set : A:\Slk17206.app

Output Set: N:\CRF4\05072003\1742684A.raw

#### Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:6; Xaa Pos. 2,3,4,5,6
Seq#:10; Xaa Pos. 1,3,4,6
Seq#:13; N Pos. 11,14,17
Seq#:14; N Pos. 12,15,24,30,33

Seq#:15; N Pos. 346